Non-Medical Prescribers’ Current Awareness Bulletin

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Department of Health and Social Care

The 9th annual report from the Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection

This report gives an overview of the work done by the Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection from April 2017 to December 2018.

It covers:

- healthcare-associated infections (HAIs)
- resistance to antimicrobials (AMR)
- antimicrobial prescribing and stewardship (AMP)
- UK AMR strategy refresh

UK 5-year action plan for antimicrobial resistance 2019 to 2024

Ambitions and actions for the next 5 years, supporting the 20-year vision for antimicrobial resistance

New commitments in the fight against antimicrobial resistance

Professor Dame Sally Davies will become UK special envoy on antimicrobial resistance (AMR), and details announced on funding UK’s work in global fight against AMR.

General Pharmaceutical Council

New independent prescriber evidence framework

An evidence framework to accompany the recently revised set of standards for the education and training of pharmacist independent prescribers, published in January 2019.

The evidence framework aims to:

- support independent prescribing (IP) course providers as they write programmes for the education and training of pharmacist independent prescribers
- provide guidance to IP course providers on how they can demonstrate meeting each of the standards as part of our accreditation or reaccreditation process, and
- provide clarity to pharmacist independent prescribers in training and their designated prescribing practitioners (DPPs) around achieving learning outcomes within the standards

Care Quality Commission

Medicines in health and adult social care: Learning from risks and sharing good practice for better outcomes

Pharmacy professionals play a vital role in improving person-centred care through better use of medicines, and this report includes examples of positive outcomes for people in a variety of services because of their input. This ranges from helping to upskill care home staff on medicines, to direct involvement in reviewing people’s medicines at the point of discharge from one setting to another. This report is based on qualitative and quantitative analysis of over 200 inspection reports of NHS and independent providers where there known medicines-related issues, 100 enforcement notices (such as Warning Notices) and 1,500 National Reporting and Learning System and statutory notifications from providers between 2015 and 2018. As well as learning for people working in primary care, mental health, adult social care and hospital settings, there were common areas for improvement across health and care, these include: staff competence and workforce capacity; reporting and learning from incidents; prescribing, monitoring and reviewing medicines; and transfer of care.
Health Education England

**e-Learning - Career Planning for Pre-Registration and Foundation Pharmacists**

Health Education England e-Learning for Healthcare (HEE e-LfH) has developed an e-learning course to help Pre-registration and Foundation Pharmacists, in the early stages of their careers, make informed career choices and effective applications for future career steps. This course is the latest in a number of bespoke career planning courses developed for health professionals within the e-LfH career planning programme.

The course will provide Pre-Registration and Foundation pharmacists with a deeper level of understanding of how to ensure future career planning is informed, realistic and robust. The course is based around five sessions, with the first being a course introduction and the remaining sessions concentrating on the four-stage SCAN career planning model:

- **Self-awareness** which includes reflecting on values, work preferences, skills interests, personality and career stressors
- **Career exploration** which includes consideration and research of career options available, as well as developing effective networks
- **Arriving at your decision** which focuses on decision making types and methods as well as how to check the robustness of career decisions
- **Next Steps** which offers advice, information and examples on CV development, job applications and preparing for interviews as well as effective action planning.

For each session, learners have the opportunity to compile a distinctive, thorough personal portfolio of research and reflections contained in a downloadable workbook, which can be used to support job applications and interviews.

The programme is available via the e-LfH Hub and the Electronic Staff Record (ESR).

For more information about the course visit: [https://www.e-lfh.org.uk/programmes/career-planning-for-healthcare-professionals/](https://www.e-lfh.org.uk/programmes/career-planning-for-healthcare-professionals/).  

Royal Pharmaceutical Society

**A Systems Approach to Medicines Optimisation and Pharmacy: Clinical and professional leadership in the NHS**

Aimed at pharmacists already in a leadership role or ready to take their first steps into system leadership, the resource is packed full of practical advice to encourage collaborative working as part of the health and social care team. It provides checklists of the resources, standards and guidance needed to build knowledge and skills, along with case studies of how pharmacists have improved medicines optimisation and patient care.

**RESEARCH ARTICLES**

Click on the title link for the full abstract at PubMed.

**NON-MEDICAL PRESCRIBING UK**

**An exploration of the perceptions of non-medical prescribers, regarding their self-efficacy when prescribing, and their willingness to take responsibility for prescribing decisions**

Cope, Louise C; Tully, Mary P; Hall, Jason. Research in Social & Administrative Pharmacy, May 2019

**OBJECTIVE** To explore the perceptions of NMPs regarding their self-efficacy in prescribing and responsibility for prescribing decisions.

**CONCLUSIONS** Self-efficacy of NMPs when prescribing is influenced by several factors. The variables within this study appear to account for only a small part of this self-efficacy. Self-efficacy in prescribing appears to contribute to NMPs' willingness to take responsibility for prescribing decisions; further influenced by their job role and the prescribing this entails. Stakeholders need to appreciate the full range of factors that influence the self-efficacy of NMPs when prescribing, and the association of this to take responsibility for prescribing decisions. This knowledge will assist in maximising the benefits of non-medical prescribing within the healthcare system.
**Embedding knowledge into non-medical prescribing education**

Walls, Elaine. *British journal of nursing, May 2019; vol. 28 (no. 10); p. 634-637*

This article focuses on the non-medical prescribing (NMP) module for community prescribers in a nurse education context. The module mainly attracts registered nurses (RNs) from community settings (such as health visiting, school nursing, district nursing and practice nursing), and is provided in higher education institutions (HEIs) as part of a specialist programme or a continuing workforce development module. The article discusses changes to the way the module was taught that can enhance student learning within the NMP module and facilitate wider success and confidence among community nurse prescribers. The move from Nursing and Midwifery Council standards for prescribing to a single competency framework from the Royal Pharmaceutical Society (RPS) has encouraged academics to revisit teaching strategies and consider an approach that offers wider student participation in learning. The use of technology-enhanced learning (TEL) in HEIs is part of national recommendations to improve the student experience and increase success.

**AIMS** To inform development of CPD workshops for mental health NPs working in memory services, a review of the literature was undertaken regarding role and CPD issues of this professional group.

**CONCLUSION** This review highlights the paucity of literature for this area of inquiry, particularly for clinical, economic and other patient outcome data.

**CONFERENCE ABSTRACT: Pharmacist and nurse prescribers in primary care: What is perceived to be effective supervision?**

Bullingham R.; Weiss M.; Deslandes R. *International Journal of Pharmacy Practice; Apr 2019; vol. 27; p. 24*

**INTRODUCTION:** Primary care nurse and pharmacy independent prescribers (IP) are at the forefront of the increasing demand on primary healthcare services in the UK. Supervision and support for nurse and pharmacy (IP) are critical in supporting safe and effective practice. Varied levels of support have been identified across the UK health settings. Without effective support, patient care could be compromised. Studies have identified that there are various levels of support across the UK health settings [1] but are the areas with identified 'support in place' effective? There is a gap in the literature at what is perceived to be 'effective support' from the perspective of the nurse and pharmacy independent prescribers receiving the support.

**AIMS:** To explore the views of primary care nurse and pharmacy independent prescribers' of what is required for successful, emotionally supportive supervision that builds confidence and competence for nurse and pharmacy independent prescribers in primary care.

**METHODS:** Ethical approval was obtained from Cardiff University School of Pharmacy and NHS permissions obtained to conduct semi-structured interviews with independent prescribing primary care nurses and pharmacists working in all 7 health boards in Wales. Purposive sampling was used; all participants who met the criteria were recruited. A topic guide, covering previous experience of supervision, perceptions of...
appropriate supervision and how supervision supports expanding their areas of clinical practice, was used to guide the interviews. A recruitment email with the details of the study was sent out to potential participants from the prescribing leads from each health board. Consent was obtained from all participants. Interviews were audio-recorded and conducted in English. Interviews were transcribed verbatim and analysed using thematic analysis.

RESULTS: Interviews were conducted with 8 nurse and 7 pharmacist independent prescribers and lasted between 20 and 45 min. Nine themes emerged from the data: current supervision arrangements, effect of support on prescribing, ideals of supervision, identification of confidence and competence, influence of others on own prescribing, multidisciplinary support, perception of governance around independent prescribing, perceptions of prescribing risk and what prescribing means to the independent prescriber. The most common theme focuses on ‘the effect of support on prescribing’. Within this theme, participants described the effects of support (and the lack of) on their prescribing practice. The participants indicated that when they felt supported, they were more inclined to broaden their scope of practice and prescribe more confidently 'I personally wouldn't feel confident and competent to initiate medicines, but I would with the right support'. They also indicated that if they did not feel supported, it would limit or stop their prescribing 'when we do minor ailments clinics I wasn't supported, so I said I'm not doing it'.

CONCLUSIONS: This is the first qualitative study to explore the perceptions of effective supervision of nurse and pharmacy independent prescribers in primary care in Wales. It raises important themes potentially relevant to all nurse and pharmacist prescribers across the UK. Future work will involve creating a model of supervision based on the findings of this research. That model will be trialled in practice, with the intention of formalising and prioritising clinical supervision based on the supervisee's preferences.
**Critical points in the pathway of antibiotic prescribing in a children's hospital: the Antibiotic Mapping of Prescribing (ABMAP) study.**

Bashir, A; Gray, J; Bashir, S; Ahmed, R; Theodosiou, E. *The Journal of hospital infection; Apr 2019; vol. 101 (no. 4); p. 461-466*

**AIM:** To understand the barriers to effective antibiotic prescribing.

**FINDINGS** Barriers to prescribing were: laboratory factors 71.6%, resource issues 40%, time constraints 17.5%, pressure from others 52%. Ninety-three percent of prescribers were concerned about anti-microbial resistance (AMR). In three scenarios only 9% were confident not to prescribe antibiotics for a patient without bacterial infection; 53% would prescribe unnecessarily broad-spectrum antibiotics for pneumonia. Only 5% would de-escalate antibiotics in a microbiologically confirmed bacteraemia. Despite concerns about AMR, prescribers did not perceive that continuing antibiotics for individual patients might promote resistance. Prescribers were unwilling to change antibiotics out of hours and reported that they preferred professional support for antibiotic prescribing.

**Relationship between prescribing of antibiotics and other medicines in primary care: a cross-sectional study**

Li, Yan; Mölter, Anna; White, Andrew et al. *The British journal of general practice; Jan 2019; vol. 69 (no. 678); p. e42*

**AIM** To evaluate the relationship between antibiotic and general prescribing levels in primary care.

**CONCLUSION** The propensity of GPs to prescribe medications generally is an important driver for antibiotic prescribing. Interventions that aim to optimise antibiotic prescribing will need to target general prescribing behaviours, in addition to specifically targeting antibiotics.

**Antibiotic prescribing for common infections in UK general practice: variability and drivers**

Palin, Victoria; Mölter, Anna; Belmonte, Miguel; Ashcroft, Darren M; White, Andrew; Welfare, William; van Staa, Tjeerd. *The Journal of antimicrobial chemotherapy; Apr 2019*

**OBJECTIVES:** To examine variations across general practices and factors associated with antibiotic prescribing for common infections in UK primary care to identify potential targets for improvement and optimization of prescribing.

**CONCLUSIONS:** Large variability in antibiotic prescribing between practices and within practices was observed. Prescribing guidelines alone do not positively influence a change in prescribing, suggesting more targeted interventions are required to optimize antibiotic prescribing in the UK.

**Delayed antibiotic prescribing for respiratory tract infections: protocol of an individual patient data meta-analysis**

Stuart, Beth; Hounkpatin, Hilda; Becque, Taeko *BMJ open; Jan 2019; vol. 9 (no. 1);*

This protocol outlines an individual patient data (IPD) meta-analysis of randomised controlled trials (RCTs) and observational cohort studies to explore the overall effect of delayed prescribing and identify key patient characteristics that are associated with efficacy of delayed prescribing.

**Balancing the risks to individual and society: a systematic review and synthesis of qualitative research on antibiotic prescribing behaviour in hospitals**

Krockow, E M; Colman, A M; Chattoe-Brown, E; *The Journal of hospital infection; Apr 2019; vol. 101 (no. 4); p. 428-439*

**AIM** To provide a systematic review of qualitative research on antibiotic prescribing decisions in hospitals worldwide, including broad-spectrum antibiotic use.

**CONCLUSIONS** When tackling antimicrobial resistance, the tensions between immediate individual risks and long-term collective risks need to be taken into account. Efforts to reduce diagnostic uncertainty and to change risk perceptions will be critical in shifting practice.
Croker, Richard; Walker, Alex J; Goldacre, Ben. The Journal of antimicrobial chemotherapy; Apr 2019; vol. 74 (no. 4); p. 1125-1132

OBJECTIVES To describe trends and geographical variation in prescribing of trimethoprim and nitrofurantoin to treat urinary tract infections, to describe variation in implementing guideline change and to compare actions taken to reduce trimethoprim use in high- and low-using Clinical Commissioning Groups (CCGs).

CONCLUSIONS Many CCGs failed to implement an important change in antibiotic prescribing guidance, and there is strong evidence suggesting that CCGs with minimal prescribing change did little to implement the new guidance. The authors recommend: (i) a national programme of training and accreditation for medicines optimization pharmacists; and (ii) remedial action for CCGs that fail to implement guidance—with all materials and data shared publicly for both such activities.

INTERNATIONAL

Variability of antibiotic prescribing in a large healthcare network despite adjusting for patient-mix: reconsidering targets for improved prescribing.
Jung, Sophia; Sexton, Mary Elizabeth; Owens, Sallie; Spell, Nathan; Fridkin, Scott. Open forum infectious diseases; Feb 2019; vol. 6 (no. 2)

In the outpatient setting, the majority of antibiotic prescriptions are for acute respiratory infections (ARIs), but most of these infections are viral and antibiotics are unnecessary.

CONCLUSIONS: Antibiotic prescribing for ARIs within TEC outpatient settings is higher than expected based on prescribing guidelines, with substantial variation in prescribing rates by site and provider. These data lay the foundation for quality improvement interventions to reduce unnecessary antibiotic prescribing.

Exploring views of pharmacists on antibacterial prescribing: a Maltese perspective
Attard Pizzuto, Maresca; Camilleri, Liberato; Azzopardi, Lilian M; Serracino-Inglott, Anthony. The International journal of pharmacy practice; Jun 2019; vol. 27 (no. 3); p. 256-263

OBJECTIVES To investigate the perception of Maltese pharmacists to prescribe a selected number of antibiotics.

CONCLUSION Pharmacists in Malta are in agreement with prescribing selected antibiotics for minor ailments. A collaborative approach between medical practitioners and pharmacists should be evaluated as a possible national structure towards achieving better antibiotic prescribing whilst giving patient access to the use of antibacterials as necessary.

Similarities and differences in antimicrobial prescribing between major city hospitals and regional and remote hospitals in Australia
Bishop, Jaclyn L; Schulz, Thomas R; Kong, David C M; James, Rodney; Buising, Kirsty L. International journal of antimicrobial agents; Feb 2019; vol. 53 (no. 2); p. 171-176

AIMS Many regional and remote hospitals (RRHs) do not have the specialist services that usually support antimicrobial stewardship (AMS) programmes in major city hospitals. It is not known if this is associated with higher rates of inappropriate antimicrobial prescribing. The aim of this study was to identify similarities and differences in antimicrobial prescribing patterns between major city hospitals and RRHs in Australia.

KEY FINDING Antimicrobial prescribing was more frequently inappropriate for some high-risk infections treated in RRHs. Targeted strategies that support appropriate antimicrobial prescribing in RRHs are required.
Influenza-like illness and antimicrobial prescribing in Australian general practice from 2015 to 2017: a national longitudinal study using the MedicineInsight dataset.
Bernardo, Carla De Oliveira; Gonzalez-Chica, David; Stocks, Nigel
BMJ open; May 2019; vol. 9 (no. 4)

OBJECTIVES To investigate the epidemiology of influenza-like illness (ILI) by general practice and patient characteristics, and explore whether sociodemographic variables or comorbidities affect antiviral or antibiotic prescribing

RESULTS ILI consultation rates in 2017 were higher than in previous years. Antiviral prescribing increased from 20.6% in 2015, to 23.7 in 2016 and 29.7% in 2017, while antibiotic prescribing decreased from 30.3% to 28.0% and 26.7%, respectively. Practices located in high socioeconomic areas had higher ILI consultation rates (4.3 vs 2.5 per 1000 consultations, p<0.05), antibiotic (30.7% vs 23.4%, p<0.05) and antiviral (34.2% vs 13.5%, p<0.05) prescribing than those in lower socioeconomic areas. The coexistence of chronic or mental health conditions was associated with lower ILI consultation rates, higher antibiotic use, but not with antiviral prescribing. However, those with chronic respiratory conditions had a higher frequency of antibiotic and antiviral prescribing in 2017 than individuals with other comorbidities.

CONCLUSIONS Although the apparent decline in antibiotic prescribing for ILI is welcome, the increase in antiviral use may not be targeting those at high risk of complications from infection.

Antimicrobial prescribing for children in primary care
Yan, Jennifer; Hawes, Lesley; Turner, Lyle; Mazza, Danielle. Journal of paediatrics and child health; Jan 2019; vol. 55 (no. 1); p. 54-58

AIM To describe the patterns of antimicrobial prescribing in general practice for children aged ≤18 years

CONCLUSIONS This study provides a focused examination of antibiotic prescribing practices for children in Australian general practice. More information is required to better understand specific prescribing practices in children, including the low frequency of amoxycillin prescription and ongoing prescription of cefaclor

Comparing prescribing and dispensing databases to study antibiotic use: a validation study of the Electronic Medical Record Administrative data Linked Database (EMRALD).
Schwartz, Kevin L; Wilton, Andrew S; Langford, Bradley J. The Journal of antimicrobial chemotherapy; Feb 2019

OBJECTIVES To validate an electronic medical record dataset containing antibiotic prescriptions and to quantify some important differences between prescribing and dispensing databases

CONCLUSIONS The authors demonstrated EMRALD is well suited for studying antibiotic prescribing by EMRALD physicians. However, due to the frequency with which patients receive antibiotic prescriptions from their non-primary care physicians, they caution against the use of non-population-based prescribing databases to infer antibiotic use rates or trends over time.

ESCMID generic competencies in antimicrobial prescribing and stewardship: towards a European consensus.
Dyar, O J; Beović, B; Pulcini, C; Tacconelli, E; Hulscher, M; Cookson, B; ESCMID generic competencies working group
Clinical microbiology and infection: Jan 2019; vol. 25 (no. 1); p. 13-19

OBJECTIVE To develop a consensus-based set of generic competencies in antimicrobial prescribing and stewardship for European prescribers through a structured consensus procedure

CONCLUSIONS The consensus achieved enabled the production of generic antimicrobial prescribing and stewardship competencies for all European independent prescribers, and of possible global utility. These can be used for training and can be further adapted to the needs of specific professional groups.

CARDIOVASCULAR

A Randomized Trial of Epinephrine in Out-of-Hospital Cardiac Arrest

A nurse-led research study that studied the safe and effective use of epinephrine as a treatment for out-of-hospital cardiac arrest patients. This study utilises a randomized, double-blind trial involving 8014 patients with out-of-hospital cardiac arrest in the United Kingdom across five National Health Service ambulance services. The study findings report that, in adults with out-of-hospital cardiac arrest, the use of epinephrine resulted in a significantly higher rate of 30-day survival than the use of placebo. This is the largest study of its kind to date and has been described by The International Liaison Committee on Resuscitation (ILCOR) as ‘The landmark study of the past two decades’.

CHILDREN & YOUNG PEOPLE

Modifying a Paediatric Rational Prescribing Tool (POPI) for Use in the UK
Corrick, Fenella; Choonara, Imti; Conroy, Sharon; Sammons, Helen. Healthcare, Feb 2019; vol. 7 (no. 1)

A literature search showed that there is only one tool for evaluating rational prescribing for paediatric patients in hospital and outpatient settings. The Pediatrics: Omission of Prescriptions and Inappropriate Prescriptions (POPI) tool was developed in France and comprises 105 criteria. The aim of this study was to modify this tool to facilitate its use in paediatric practice in the United Kingdom (UK).

Exploring the human factors of prescribing errors in paediatric intensive care units
Sutherland, Adam; Ashcroft, Darren M; Phipps, Denham L Archives of disease in childhood; Jun 2019; vol. 104 (no. 6); p. 588-595

OBJECTIVE To explore the factors contributing to prescribing error in paediatric intensive care units (PICUs) using a human factors approach based on Reason's theory of error causation to support planning of interventions to mitigate slips and lapses, rules-based mistakes and knowledge-based mistakes.

CONCLUSIONS Cognitive burden on prescribers is the principal latent factor contributing to prescribing error. This research suggests that interventions relating to skill mix, and communication and presentation of information may be effective at mitigating rule and knowledge-based mistakes. Mitigating fatigue and standardising procedures may minimise slips and lapses.

International Cost-effectiveness analysis of a GP- and parent-directed intervention to reduce antibiotic prescribing for children with respiratory tract infections in primary care
Dekker, Anne R J; van der Velden, Alike W. The Journal of antimicrobial chemotherapy; Apr 2019; vol. 74 (no. 4); p. 1137-1142

AIM To evaluate costs and effects of the RAAK (RAtional Antibiotic use Kids) intervention (GP online training and information booklets for parents), aiming to reduce antibiotic prescribing for children with respiratory tract infection.
CONCLUSIONS The online training for GPs and the information booklet for parents resulted in a decrease in antibiotic prescribing in children with RTI, at very low cost, and should therefore be considered for implementation in primary care.

Cross-sectional survey of off-label and unlicensed prescribing for inpatients at a paediatric teaching hospital in Western Australia
Landwehr, Caitlin; Richardson, Jennifer; Bint, Lewis; Parsons, Richard; Sunderland, Bruce; Czarniak, Petra. *PloS one;* 2019; *vol. 14 (no. 1)*

OBJECTIVES To evaluate the prevalence of off-label and unlicensed prescribing in inpatients at a major paediatric teaching hospital in Western Australia and to identify which drugs are commonly prescribed off-label or unlicensed, including factors influencing such prescribing.

CONCLUSIONS This study highlights that prescribing of paediatric drugs needs to be better supported by existing and new evidence. Incentives should be established to foster the conduct of evidence-based studies in the paediatric population. The current level of off-label prescribing raises issues of unexpected toxicity and adverse drug effects in children that are in some cases severely ill.

Data Analysis
Measuring the Impact of an Open Web-Based Prescribing Data Analysis Service on Clinical Practice: Cohort Study on NHS England Data
Walker, Alex J; Curtis, Helen; Croker, Richard; Bacon, Seb; Goldacre, Ben. *Journal of medical Internet research;* Jan 2019; *vol. 21 (no. 1)*

OpenPrescribing is a freely accessible service that enables any user to view and analyze the National Health Service (NHS) primary care prescribing data at the level of individual practices. This tool is intended to improve the quality, safety, and cost-effectiveness of prescribing. The objective was to measure the impact of OpenPrescribing being viewed on subsequent prescribing. The researchers found a positive impact from the use of OpenPrescribing, specifically for the class of savings opportunities that can only be identified by using this tool. They show that it is possible to conduct a robust analysis of the impact of such a Web-based service on clinical practice.

Diabetes
Interventions to improve insulin prescribing practice for people with diabetes in hospital: a systematic review.
Bain, A; Hasan, S S; Babar, Z Ud-Din. *Diabetic medicine: a journal of the British Diabetic Association;* May 2019

AIM To conduct a systematic review of literature to identify interventions that are effective in improving insulin prescribing for people with diabetes in the hospital setting.

CONCLUSIONS Implementing strategies that are sensitive to local context and designed to increase adherence to insulin prescribing guidelines are associated with a reduction in prescribing errors. Future implementation should build on effective approaches including multifaceted interventions involving multiple stakeholders at various institutional levels. Future studies in insulin prescribing errors would benefit from the use of standardized approaches, terminology and outcome measures to enable greater comparison.
**Impact of pharmacist intervention on glucagon prescribing patterns in an outpatient internal medicine teaching clinic**

O’Reilly, Emily A; Cross, Lourdes V; Hayes, Jonathan S; Kubiak, Nancy T

*Journal of the American Pharmacists Association; May 2019*

**OBJECTIVES**: To examine changes in the rate of glucagon prescribing within an internal medicine resident clinic following pharmacist-led interventions and to analyze glucagon prescribing patterns.

**CONCLUSION**: Pharmacist-led intervention was associated with an increased rate of glucagon prescribing for patients with T1DM and T2DM within the resident teaching clinic. To improve further on the results, the research team plans to perform subsequent Plan, Do, Study, Act cycles to continuously improve the rate of prescriptions for at-risk patients. Overall, this project could encourage other pharmacy teams to evaluate strategies to increase glucagon prescribing and to evaluate clinical outcomes within outpatient primary care clinics.

**ELECTRONIC PRESCRIBING**

**UK**

**What is the impact of introducing inpatient electronic prescribing on prescribing errors? A naturalistic stepped wedge study in an English teaching hospital**

Franklin, Bryony Dean; Puaar, Seetal

*Health informatics journal; Mar 2019*

Data was collected weekly during a phased electronic prescribing implementation across 20 wards in a large English hospital. Errors involving incorrect doses and illegible or incomplete orders were less common with electronic prescribing; those involving duplication, omission, incorrect drug and incorrect formulation were more common.

**Effectiveness and safety of electronically delivered prescribing feedback and decision support on antibiotic use for respiratory illness in primary care: REDUCE cluster randomised trial.**

Gulliford, Martin C; Prevost, A Toby; Charlton, Judith

*BMJ (Clinical research ed.); Feb 2019; vol. 36; p. 1236*

**OBJECTIVES**: To evaluate the effectiveness and safety at population scale of electronically delivered prescribing feedback and decision support interventions at reducing antibiotic prescribing for self-limiting respiratory tract infections.

**CONCLUSIONS**: Electronically delivered interventions, integrated into practice workflow, result in moderate reductions of antibiotic prescribing for respiratory tract infections in adults, which are likely to be of importance for public health. Antibiotic prescribing to very young or old patients requires further evaluation.

**Patient and clinician perspectives of an integrated electronic medication prescribing and dispensing system: A qualitative study at a multisite Australian hospital network**

Lau, Grace; Ho, Jayde; Lin, Susan; Yeoh, Karen; Wan, Tiffany; Hodgkinson, Marisa

*Health information management: journal of the Health Information Management Association of Australia; Jan 2019; vol. 48 (no. 1); p. 12-23*

**OBJECTIVE**: The objective of this study is to explore and compare patient and clinician attitudes towards an integrated e-prescribing and dispensing system, in order to guide improvements in system implementation, service delivery and enhancements to system functionality.

**CONCLUSION**: The majority of patients and clinicians reported a positive impact of e-prescribing on safety and efficiency. Both groups valued safe and effective use of medicines, although differences existed in the importance placed on key system features. A greater focus on patient engagement and communication is needed to optimise the delivery of patient-centred care.
Discrepancies Between the Medication List in Electronic Prescribing Systems and Patients' Actual Use of Medicines.

Bülow, Cille; Flagstad Bech, Christine; Ullitz Faerch, Kirstine.
The Senior care pharmacist; May 2019; vol. 34 (no. 5); p. 317-324

Discrepancies between electronic prescribing systems and patients' actual use of medicines can result in adverse events and medication errors and have serious consequences for the patients. The discrepancies can be identified when performing a thorough medication reconciliation. Computerized health care systems throughout the Danish health care sector are integrated with the Shared Medication Record (SMR). In the SMR, current medication and medication prescriptions are registered. The aim of this study was to evaluate the number and types of discrepancies between medications listed in the SMR and an updated medication list, obtained through a thorough medication reconciliation, for patients admitted in Danish hospitals. Pharmacists listed the number and type of discrepancies for 412 patients. A total of 1,004 discrepancies were registered, with a mean number of 2.4 medication discrepancies per patient. For 25% (n = 101) of the patients, no discrepancies were found, 20% (n = 86) had one discrepancy, and 16% (n = 66) had five or more discrepancies. More than 50% of the patients had one or more medications in the SMR that the patient did not administer, and 12.6% used medications that were not listed in the SMR. This shows that the SMR should not be used as the only source of information when recording medication history.

Prescribing trends and revisit rates following a pharmacist-driven protocol change for community-acquired pneumonia in an emergency department.

Zimmerman, David E; Covvey, Jordan R; Nemecek, Branden D.
The International journal of pharmacy practice; Jun 2019; vol. 27 (no. 3); p. 279-285

OBJECTIVE To compare pharmacist-led prescribing changes and associated 30-day revisit rates across different regimens for patients discharged from an emergency department (ED) with a diagnosis of community-acquired pneumonia (CAP).

CONCLUSIONS The current study showed a significant increase in antibiotic prescribing compliance following a pharmacist-driven protocol change and education, but no statistical difference in rates of return for macrolide monotherapy versus other regimens.

MEDICAL EDUCATION

A pilot study of a pharmacist-led prescribing program for final-year medical students (New South Wales, Australia)

Newby, David A; Stokes, Barrie; Smith, Anthony J.
BMC medical education; Feb 2019; vol. 19 (no. 1); p. 54

This study has shown the potential effect of a pharmacist-led prescribing program on the skills and confidence in prescribing by medical students. It provided an interprofessional teaching opportunity, preparing students for a team-based approach to patient management.
Appropriate antibiotic prescribing among final-year medical students in Europe
van der Voort, Tim; Brinkman, David J; Benemei. 
*International journal of antimicrobial agents; May 2019*

**OBJECTIVES** To evaluate the antibiotic prescribing skills of final-year medical students across Europe and the education they have received during medical training.

**CONCLUSIONS** Although there are differences between medical schools, final-year medical students in Europe lack prescribing skills for two common infectious diseases (acute bronchitis and community acquired pneumonia [CAP]), possibly because of inadequate undergraduate education on antibiotic use and general prescribing.

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**MEDICATION REVIEWS**

**Efficiency versus thoroughness in medication review: a qualitative interview study in UK primary care.**
Duncan, Polly; Cabral, Christie; McCahon, Deborah; Guthrie, Bruce; Ridd, Matthew J

*The British journal of general practice: the journal of the Royal College of General Practitioners; Mar 2019; vol. 69 (no. 680); p. e190*

**BACKGROUND** Medication reviews may improve the safety of prescribing and the National Institute for Health and Care Excellence (NICE) highlights the importance of involving patients in this process.

**AIM** To explore GP and pharmacist perspectives on how medication reviews were conducted in general practice in the UK.

**CONCLUSION** Practices tended to prioritise being efficient (getting the work done) rather than being thorough (doing it well), so that most medication reviews were carried out with little or no patient involvement, and medicines were rarely stopped or reduced. Time and resource constraints are an important barrier to implementing NICE guidance.

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**MENTAL HEALTH**

**Changes in prescribing for bipolar disorder between 2009 and 2016: national-level data linkage study in Scotland**
Lyall, Laura M; Penades, Nagore; Smith, Daniel J. 
*The British journal of psychiatry: the journal of mental science; Feb 2019; p. 1-7*

**Aims** To employ a data linkage approach to describe and evaluate prescribing patterns in bipolar disorder in Scotland between 2009 and 2016.

**CONCLUSIONS** Antidepressant monotherapy was the most common form of treatment for bipolar disorder in Scotland and prescribing of lithium has declined between 2009 and 2016. The findings are concerning and represent a gap between treatment guidelines and clinical practice.

**Identifying potential prescribing safety indicators related to mental health disorders and medications: A systematic review**
Khawagi, Wael Y; Steinke, Douglas T; Nguyen, Joanne; Keers, Richard N. 
*PloS one; 2019; vol. 14 (no. 5)*

**OBJECTIVE** To identify potential prescribing safety indicators (PSIs) related to mental health (MH) medications and conditions.

**CONCLUSION** This is the first systematic review to identify a comprehensive list of MH related potential PSIs. This list should undergo further validation and could be used as a foundation for the development of new suites of PSIs applicable to patients with mental illness.

**An exploration of why qualified mental health nurse prescribers do not prescribe**
Oldknow, Helen; Gillibrand, Warren; Clifton, Andrew. 
*British Journal of Mental Health Nursing; 2019; vol. 8 (no. 1); p. 41*

This article is an exploratory study of perceptions in mental health nurses who are qualified to prescribe yet choose not to do so. In-depth semi-structured face-to-face interviews, field notes and analysis of documents were used to investigate the perceptions of the non–
prescribing nurse prescriber. A mapping exercise was conducted to identify potential participants. Interview data analysis was based on the principles of descriptive phenomenology and the research was theoretically framed within concepts of power, structure/agency and culture. This study has contributed to understanding the views of non-prescribing mental health nurse prescribers on why they do not use their prescribing qualification. The findings from this study suggest that there are complex, interlocking factors: power and knowledge; culture; and structure and agency, which may enable or prevent mental health nurse prescribers from independently prescribing.

**NURSING HOMES**

**INTERNATIONAL**

A retrospective comparison of inappropriate prescribing of psychotropics in three Norwegian nursing homes in 2000 and 2016 with prescribing quality indicators

Schjøtt, Jan; Aßmus, Jörg
BMC medical informatics and decision making; May 2019; vol. 19 (no. 1); p. 102

The present study compared inappropriate prescribing of psychotropics in nursing homes 16 years apart with prescribing quality indicators. The purpose was to identify any change in inappropriate prescribing of relevance for medical informatics. From 2000 to 2016, psychotropic polypharmacy increased from 6.2 to 29.6%, potential inappropriate psychotropic substances was reduced from 17.9 to 11.3% and potential inappropriate psychotropic combinations increased from 7.8 to 27.9%.

**OLDER PEOPLE**

**INTERNATIONAL**

Identifying potentially inappropriate prescribing in older people with dementia: a systematic review

Hukins, Deborah; Macleod, Una; Boland, Jason W
European journal of clinical pharmacology; Apr 2019; vol. 75 (no. 4); p. 467-481

AIM To describe how international tools designed to identify potentially inappropriate prescribing have been used in studies of older people with dementia, the prevalence of potentially inappropriate prescribing in this cohort and advantages/disadvantages of tools

CONCLUSIONS Variations in tool application may at least in part explain variations in potentially inappropriate prescribing across studies. Recommendations include a more standardised tool usage and ensuring the tools are comprehensive enough to identify all potentially inappropriate medications and are kept up to date.

Antibiotic prescribing for the older adult: beliefs and practices in primary care.

Hayward, G N; Moore, A; Mckelvie, S; Lasserson, D S; Croxson, C.
The Journal of antimicrobial chemotherapy; Mar 2019; vol. 74 (no. 3); p. 791-797

OBJECTIVES To understand the attitudes and beliefs held by GPs regarding antibiotic prescribing in older adults

CONCLUSIONS Diagnosing serious infections in older adults is challenging and antibiotic prescribing practices reflect this challenge, but also reflect an absence of clear guidance or evidence. Research that can fill the gaps in the evidence base is required in order to support GPs with their critical antimicrobial stewardship role in this population.

**INTERNATIONAL**

The effect of providing prescribing recommendations on appropriate prescribing: a cluster-randomized controlled trial in older adults in a preoperative setting

Boersma, Marijke Nynke; Huibers, Corlina et al.
British journal of clinical pharmacology; May 2019

AIM: The 'Systematic Tool to Reduce Inappropriate Prescribing' is a method to assess patient's medication and has been incorporated into a clinical decision support system: STRIP Assistant. The aim was to evaluate the effect of recommendations generated using STRIP Assistant on appropriate prescribing and mortality in a preoperative setting.
CONCLUSION: Prescribing recommendations generated with the help of STRIP Assistant improved appropriate prescribing in a preoperative geriatric outpatient clinic but did not affect post-operative mortality.

Modification of Potentially Inappropriate Prescribing Following Fall-Related Hospitalizations in Older Adults
Walsh, Mary E; Boland, Fiona; Moriarty, Frank; Fahey, Tom. Drugs & aging; May 2019; vol. 36 (no. 5); p. 461-470

OBJECTIVES The aim of this before-and-after cohort study was to explore patterns of relevant potentially inappropriate prescribing in older people with fall-related hospitalizations [in Ireland].

CONCLUSION Fall-related potentially inappropriate prescribing is prevalent in older adults who have a history of falls, and continues after discharge from hospital. Future studies should investigate why such prescribing is initiated after a fall-related hospitalization, and explore interventions that could reduce such hazardous prescribing.

ONCOLOGY

Non-medical prescribing of systemic anticancer therapy in a multidisciplinary team oncology clinic
Hand (née Davies), Philippa R British Journal of Nursing; Jun 2019; vol. 28 (no. 11); p. 715-720

A new multidisciplinary team (MDT) systemic anti-cancer therapy (SACT) clinic for neuroendocrine tumours (NET) patients was developed that incorporated a CNS SACT non-medical prescriber (NMP) to improve patient experience and reduce the number of oncologist clinic reviews. 29 SACT NMP prescriptions for 15 patients were written. Patient and medical colleague feedback was positive. This experience has helped to highlight the positive impact of innovative clinics that combine the expertise of both independent nurse practitioners and the medical team. This has paved the way for further clinics of this kind within the author's trust and the NET service.

IMPLEMENTATION

Implementation of additional prescribing authorization among oncology pharmacists in Alberta
Au, Bianca; Dersch-Mills, Deonne; Ghosh, Sunita; Jupp, Jennifer; Chambers, Carole; Cusano, Frances; Danilak, Melanie Journal of oncology pharmacy practice; Apr 2019; vol. 25 (no. 3); p. 584-598

PURPOSE: To describe the practice settings and prescribing practices of oncology pharmacists with additional prescribing authorization.

CONCLUSION: The current majority of oncology pharmacist prescribing in Alberta occurs in ambulatory care with a large focus on antiemetic prescribing. Pharmacists found additional prescribing authorization most useful for ambulatory patient assessment and follow-up.

Effects of pharmacist interventions on reducing prescribing errors of investigational drugs in oncology clinical trials
Moon, Jin Young; Lee, Yeonhong; Han, Ji Min Journal of oncology pharmacy practice; Mar 2019

OBJECTIVES This study aimed to investigate the effectiveness of pharmacist intervention in reducing and preventing prescribing errors of investigational drugs for cancer patients.

CONCLUSIONS The investigational drug service pharmacist intervention in cancer clinical trials was associated with significant reductions in prescribing errors and may lead to increased medication safety.

OPIOIDS

Curtis, Helen J; Croker, Richard; Walker, Alex J; Richards, Georgia C; Quinlan, Jane; Goldacre, Ben The Lancet. Psychiatry; Feb 2019; vol. 6 (no. 2); p. 140-150

BACKGROUND There is a call for greater monitoring of opioid prescribing in the UK, particularly of strong opioids in chronic pain, for
which there is little evidence of clinical benefit. The authors aimed to comprehensively assess trends and variation in opioid prescribing in primary care in England, from 1998 to 2018, and to assess factors associated with high-dose opioid prescribing behaviour in general practices.

**FINDINGS** Between 1998 and 2016, opioid prescriptions increased by 34% in England (from 568 per 1000 patients to 761 per 1000). After correcting for total oral morphine equivalency, the increase was 127% (from 190,000 mg to 431,000 mg per 1000 population). There was a decline in prescriptions from 2016 to 2017. If every practice prescribed high-dose opioids at the lowest decile rate, 543,000 fewer high-dose prescriptions could have been issued over a period of 6 months. Larger practice list size, ruralness, and deprivation were associated with greater high-dose prescribing rates. Failing to account for opioid strength would substantially underestimate the true increase in opioid prescribing in the National Health Service (NHS) in England.

**CONCLUSION** In Michigan, surgical patients discharged from teaching hospitals received significantly larger postoperative opioid prescriptions and had higher rates of high-risk prescribing compared with nonteaching hospitals.

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**PALLIATIVE CARE**

**UK**

**Out-of-hours primary care end of life prescribing: a data linkage study.**

Brettell, Rachel; Fisher, Rebecca; Hunt, Helen; Garland, Sophie; Lasserson, Daniel; Hayward, Gail

**BMJ supportive & palliative care; May 2019**

**OBJECTIVES** Out-of-hours (OOH) primary care services are contacted in the last 4 weeks of life by nearly 30% of all patients who die, but OOH palliative prescribing remains poorly understood. This study examines the volume and type of prescriptions issued by OOH services at the end of life.

**CONCLUSION** Absolute and relative prescribing rates are low in the 30 days prior to death. Further research is required to understand what occurs at these non-prescribing end of life contacts to inform how OOH provision can best meet the needs of dying patients. Overall, relatively few patients are prescribed strong opioids or syringe drivers. When a syringe driver medication is prescribed this may help identify patients likely to be in need of further support from the service.

**Getting anticipatory prescribing right in end-of-life care**

Bowers, Ben; While, Alison

**British Journal of Community Nursing; Jun 2019; vol. 24 (no. 6); p. 274-277**

There is a growing number of people who need access to high-quality end-of-life care in the home setting. This requires timely assessments of needs, ensuring good symptom management and recognising the roles undertaken by carers. For some patients, a range of medications may need to be put in place to relieve end-of-life symptoms, using ‘anticipatory prescribing’. District nurses must ensure that they acknowledge the patient’s
voiced preferences and be mindful of the safety issues that arise with the supply of controlled drugs in the home. This article highlights the challenges faced by district nurses providing or dealing with anticipatory prescribing during end-of-life care.

PHARMACY

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Pharmacist-led teaching as a longitudinal theme for medical school curriculums - a solution for reducing prescribing errors in junior doctors?
Lloyd, Naomi.
BMC medical education; May 2019; vol. 19 (no. 1); p. 173

Many prescriptions, and errors, are written by junior doctors which raises the question of whether the medical school curriculum could be changed to better prepare students for prescribing. There is a great deal of evidence in the literature describing how pharmacist-led teaching in later years of medical school has a beneficial effect on the quality of prescriptions written by junior doctors. In addition, this style of teaching leads to a reduction in the number of prescribing errors that occur. However, many of these papers still reported that students were still apprehensive about their prescriptions after the teaching programmes, and a number of their prescriptions still contained some inaccuracies.

What patient assessment skills are required by pharmacists prescribing systemic anti-cancer therapy? A consensus study
Allison, Jennifer; Fisher, Julie; Souter, Caroline; Bennie, Marion.
Journal of oncology pharmacy practice; May 2019

BACKGROUND In the UK, pharmacist independent prescribers can prescribe for any condition within their clinical competence including systemic anti-cancer therapy. Competency frameworks have been developed but contain little detail on the patient assessment skills pharmacist independent prescribers require to prescribe systemic anti-cancer therapy with concern in the literature over current training on these skills.

AIM To gain consensus on the patient assessment skills required by pharmacist independent prescribers prescribing systemic anti-cancer therapy for genitourinary cancer (prostate and renal) and lung cancer across National Health Service Scotland.

CONCLUSION We identified the core and specific patient assessment skills required to prescribe systemic anti-cancer therapy within two tumour groups. Further work is necessary to develop patient assessment skill competency frameworks, training and assessment methods and to redefine the roles of pharmacist independent prescribers within the multi-disciplinary team.

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INTERNATIONAL

Exploring pharmacy service users' support for and willingness to use community pharmacist prescribing services
Famiyeh, Ida-Maisie; MacKeigan, Linda; Thompson, Alison; Kulski, Kerry; McCarthy, Lisa
Research in social & administrative pharmacy: RSAP; May 2019; vol. 15 (no. 5); p. 575-583

BACKGROUND In 2012, community pharmacists in Ontario, Canada gained regulatory authority to independently prescribe, including renew and adapt prescriptions. Studies have explored views of pharmacists, physicians and policymakers about pharmacist prescribing but less is known about the views of community pharmacy services users.

CONCLUSION Community pharmacy service users in Ontario expressed varying support for and stated willingness to use pharmacist prescribing services. This seemed to be due to their perceptions of the pharmacists' role (compared to physicians) and concerns about risks. Understanding these contributing factors will help implement strategies that address concerns and facilitate use of community pharmacists' prescribing services.

Effectiveness of interventions involving pharmacists on antibiotic prescribing by general practitioners: a systematic review and meta-analysis.
Saha, Sajal K; Hawes, Lesley; Mazza, Danielle
The Journal of antimicrobial chemotherapy; Jan 2019
OBJECTIVE To assess the effectiveness of antibiotic stewardship programmes involving pharmacists at improving antibiotic prescribing by general practitioners

CONCLUSIONS ASPs involving pharmacists are effective in decreasing antibiotic prescribing and increasing guideline-adherent antibiotic prescribing by GPs.

The impact of a pharmacist on post-take ward round prescribing and medication appropriateness
Bullock, B; Donovan, P; Mitchell, C; Whitty, J A; Coombes, I.
International journal of clinical pharmacy; Feb 2019; vol. 41 (no. 1); p. 65-73

OBJECTIVES To evaluate the impact of clinical pharmacist participation on the post-take ward round on the appropriateness of medication prescribing, medication communication, and overall patient health care outcomes.

A pre-post intervention study was undertaken that compared the addition of a senior clinical pharmacist attending the post-take ward compared to usual ward based pharmacist service, with no pharmacist present of the post-take ward round.

CONCLUSION Clinical pharmacist participation on the post-take ward round leads to improved medication-related communication and improved medication appropriateness but did not significantly improve health care outcomes.

Evaluation of a pharmacist-led penicillin allergy de-labelling ward round: a novel antimicrobial stewardship intervention
Devchand, M; Kirkpatrick, C M J; Stevenson, W; Garrett, K; Perera, D.
The Journal of antimicrobial chemotherapy; Jun 2019; vol. 74 (no. 6); p. 1725-1730

BACKGROUND Antibiotic allergy labels (AALs), reported by up to 25% of hospitalized patients, are a significant barrier to appropriate prescribing and a focus of antimicrobial stewardship (AMS) programmes.

METHODS A prospective audit of a pharmacist-led AMS penicillin allergy de-labelling ward round at Austin Health (Melbourne, Australia) was evaluated.

CONCLUSIONS A pharmacist-led AMS penicillin allergy de-labelling ward round reduced penicillin AALs and the prescribing of restricted antibiotics. This model could be implemented at other hospitals with existing AMS programmes

PRIMARY CARE

Benzodiazepines and non-benzodiazepine hypnotics - impact of a cluster adopted protocol on primary care prescribing.
Weatherburn, Christopher J
Scottish medical journal; May 2019

AIMS Reduction of benzodiazepines and non-benzodiazepine hypnotics (BZDs and Z-drugs) prescribing is a priority. Dundee, Scotland, has a total of 25 general practices, split into four clusters. The cluster with the highest recorded prescribing of BZDs and Z-drugs adopted a prescribing protocol that aimed to reduce such prescribing. This paper evaluates the impact of this protocol.

CONCLUSIONS Introduction of a cluster-wide prescribing protocol did not provide significant reduction of prescribing. Although crude figures might suggest an improvement, ITS analysis revealed this not to be the case.

DISCUSSION

My experience as a non-medical prescriber from 2012–2019: are we still facing the same problems?
Hubbard, Kevin
Journal of Prescribing Practice; Jun 2019; vol. 1 (no. 6); p. 302-305

This article is a reflective account of one non-medical prescriber and discusses everyday prescribing issues that have affected him since qualifying as a non-medical prescriber and reflects on the influences on prescribing practice.

COCHRANE REVIEWS

Probiotics for preventing acute otitis media in children
Authors’ conclusions: Probiotics may prevent AOM in children not prone to AOM, but the inconsistency of the subgroup analyses suggests
caution in interpreting these results. Probiotics decreased the proportion of children taking antibiotics for any infection. The proportion of children experiencing adverse events did not differ between the probiotic and comparator groups. The optimal strain, duration, frequency, and timing of probiotic administration still needs to be established.

**Melatonin and agomelatine for preventing seasonal affective disorder**

Authors' conclusions: Given the uncertain evidence on agomelatine and the absence of studies on melatonin, no conclusion about efficacy and safety of agomelatine and melatonin for prevention of SAD can currently be drawn. The decision for or against initiating preventive treatment of SAD and the treatment selected should consider patient preferences and reflect on the evidence base of all available treatment options.

**Acetyl-L-carnitine for the treatment of diabetic peripheral neuropathy**

Authors' conclusions: We are very uncertain whether ALC causes a reduction in pain after 6 to 12 months' treatment in people with DPN, when compared with placebo, as the evidence is sparse and of low certainty. Data on functional and sensory impairment and symptoms are lacking, or of very low certainty. The evidence on adverse events is too uncertain to make any judgements on safety.

**Inhaled corticosteroids in children with persistent asthma: effects of different drugs and delivery devices on growth**

Authors' conclusions: This review suggests that the drug molecule and delivery device may impact the effect size of ICS on growth in children with persistent asthma. Fluticasone at an equivalent dose seems to inhibit growth less than beclomethasone and budesonide. Easyhaler is likely to have less adverse effect on growth than Turbuhaler when used for delivery of budesonide. However, the evidence from this systematic review of head-to-head trials is not certain enough to inform the selection of inhaled corticosteroid or inhalation device for the treatment of children with persistent asthma. Further studies are needed, and pragmatic trials and real-life observational studies seem more attractive and feasible.

**Tramadol for osteoarthritis**

Authors' conclusions: Moderate quality evidence indicates that compared to placebo, tramadol alone or in combination with acetaminophen probably has no important benefit on mean pain or function in people with osteoarthritis, although slightly more people in the tramadol group report an important improvement (defined as 20% or more). Moderate quality evidence shows that adverse events probably cause substantially more participants to stop taking tramadol. The increase in serious adverse events with tramadol is less certain, due to the small number of events.

**Risk-reducing medications for primary breast cancer: a network meta-analysis**

Authors' conclusions: For women with an above-average risk of developing breast cancer, CPAs can reduce the incidence of this disease. AIs appear to be more effective than SERMs (tamoxifen) in reducing the risk of developing breast cancer. AIs are not associated with an increased risk of endometrial cancer and thromboembolic events. However, long-term data on toxicities from tamoxifen are available while the follow-up toxicity data on unaffected women taking AIs is relatively short. Additional data from direct comparisons are needed to fully address the issues of breast cancer prevention by risk-reducing medications, with special regards to acceptability (i.e. the benefit/harm ratio).

**Adjuvant therapy with antidepressants for the management of inflammatory bowel disease**

Authors' conclusions: The results for the outcomes assessed in this review are uncertain and no firm conclusions regarding the efficacy and safety of antidepressants in IBD can be drawn. Future studies should employ RCT designs, with a longer follow-up and develop solutions to address attrition. Inclusion of objective markers of disease activity is strongly recommended as is testing antidepressants from different classes, as at present it is unclear if any antidepressant (or class thereof) has differential efficacy.
**NATIONAL GUIDANCE [NICE]**

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